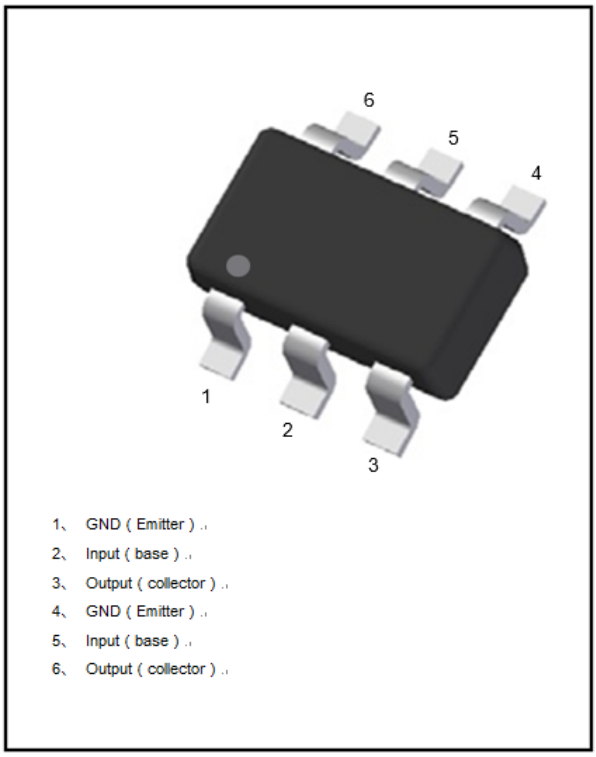
Dual NPN+PNP Digital Transistors (Built-in Resistors)



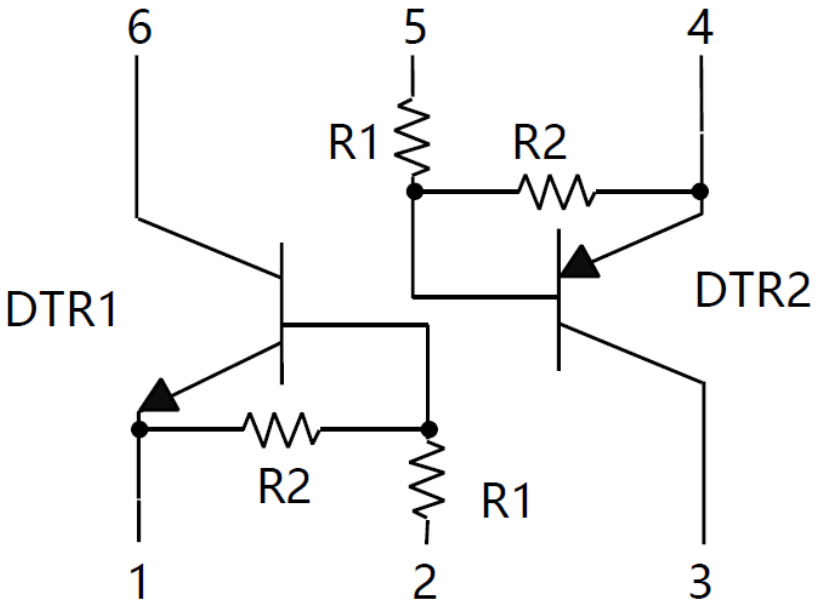
Features

- Epoxy meets UL-94 V-0 flammability rating
- Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors
- Surface mount package ideally Suited for Automatic Insertion

Mechanical Data

- **Package:** SOT-363S
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Marking:** D3

■Equivalent circuit



■Maximum Ratings (Ta=25℃ Unless otherwise specified)

DTR1-NPN

ITEM	SYMBOL	UNIT	CONDITIONS	VALUE
Supply Voltage	V_{CC}	V		50
Input Voltage	V_{IN}	V		-10 to +40
Output Current	I_O	mA		100
Power Dissipation	P_D	mW		150
Junction Temperature （Single）	Tj	℃		150
Storage Temperature	T_{STG}	℃		-55 to +150

DTR2-PNP

ITEM	SYMBOL	UNIT	CONDITIONS	VALUE
Supply Voltage	V_{CC}	V		-50
Input Voltage	V_{IN}	V		-40 to +10
Output Current	I_O	mA		-100
Power Dissipation	P_D	mW		150
Junction Temperature	Tj	℃		150
Storage Temperature	T_{STG}	℃		-55 to +150

■Electrical Characteristics (Ta=25℃ unless otherwise specified)

DTR1-NPN

ITEM	SYMBOL	UNIT	CONDITIONS	MIN	TYP	MAX
Input voltage	$VI_{(off)}$	V	V_{CC}=5V,Ic=100uA	0.5	-	-
	$VI_{(on)}$	V	V_O=0.3V,Ic=10mA	-	-	3
Output voltage	$Vo_{(on)}$	V	Io /Ii =10mA/0.5 mA	-	-	0.3
Input current	I_I	mA	V_I=5V	-	-	0.88
Output current	$I_{O(off)}$	uA	V_{CC}=50V, Vi=0	-	-	0.5
DC current gain	G_I		Vo=5V, Io =5mA	30	-	-
Input resistance	R_1	kΩ		7	10	13
Resistance ratio	R_2/R_1			0.8	1	1.2
Transition frequency	f_T	MHz	V_{CE}=10V,I_E=5mA,f=100MHz	-	250	-

DTR2-PNP

ITEM	SYMBOL	UNIT	CONDITIONS	MIN	TYP	MAX
Input voltage	$VI_{(off)}$	V	V_{CC}=-5V,Ic=-100uA	-0.5	-	-
	$VI_{(on)}$	V	V_O=-0.3V,Ic=-10mA	-	-	-3
Output voltage	$Vo_{(on)}$	V	Io /Ii =-10mA/-0.5 mA	-	-	-0.3
Input current	I_I	mA	V_I=-5V	-	-	-0.88
Output current	$I_{O(off)}$	uA	V_{CC}=-50V, Vi=0	-	-	-0.5
DC current gain	G_I		Vo=-5V, Io =-5mA	30	-	-
Input resistance	R_1	kΩ		7	10	13
Resistance ratio	R_2/R_1			0.8	1	1.2
Transition frequency	f_T	MHz	V_{CE}=-10V,I_E=-5mA,f=100MHz	-	250	-

■ **Ordering Information** (Example)

PREFERED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
UMD3NS	F2	Approximate 0.009g	3000	30000	120000	7” reel

■ **Characteristics** (Typical)

Fig. 1 - DTR1 DC Current Gain Characteristics

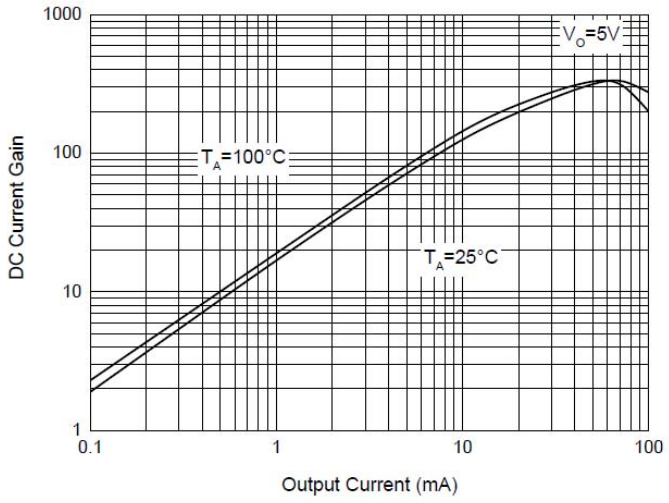


Fig. 2 - DTR1 Input Voltage (on) Characteristics

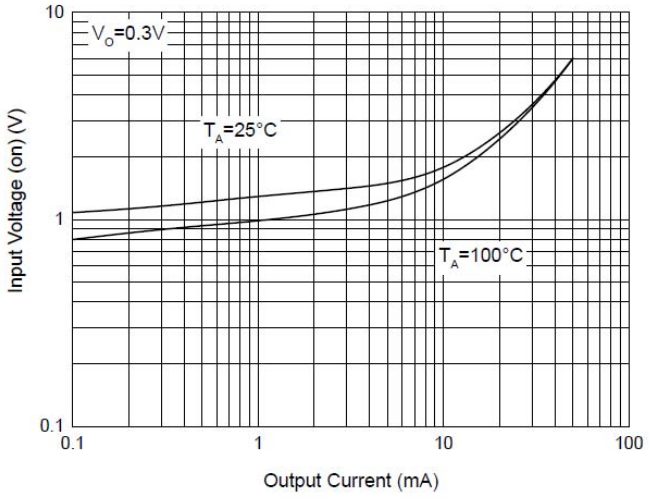


Fig. 3 - DTR1 Input Voltage (off) Characteristics

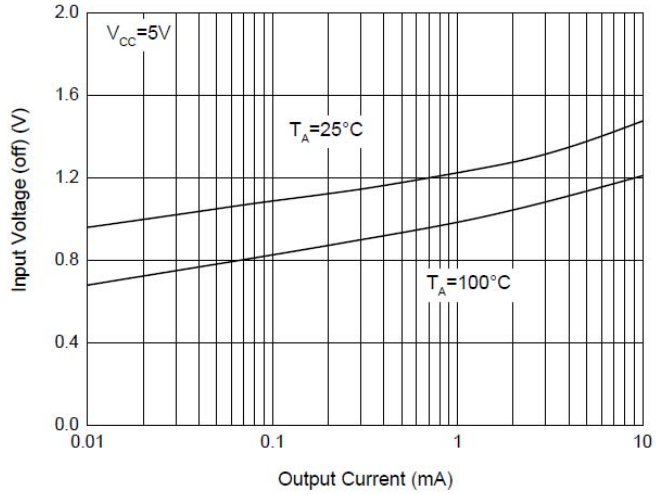


Fig. 4 - DTR1 Output Voltage Characteristics

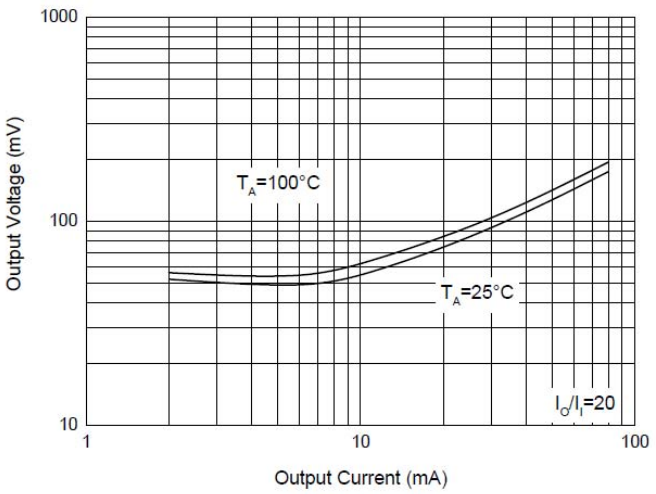


Fig. 5 - DTR2 DC Current Gain Characteristics

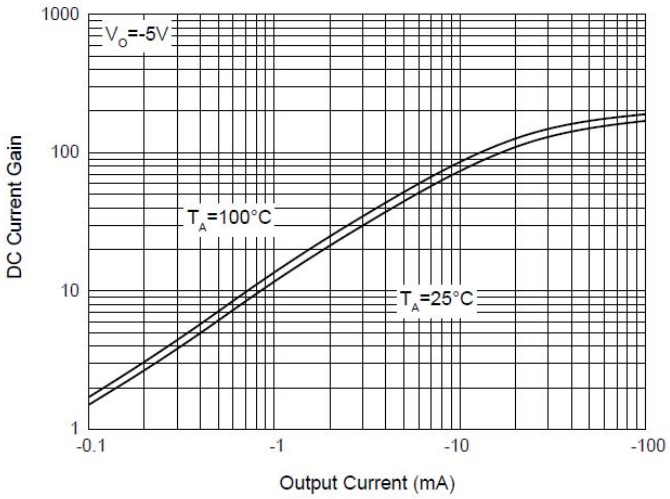


Fig. 6 - DTR2 Input Voltage (on) Characteristics

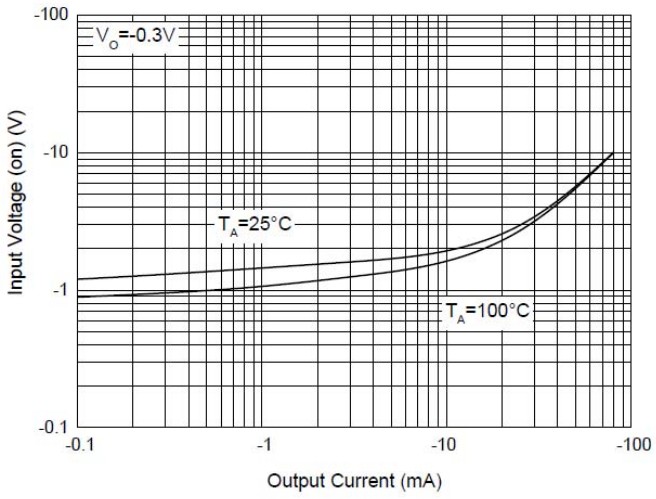


Fig. 7 - DTR2 Input Voltage (off) Characteristics

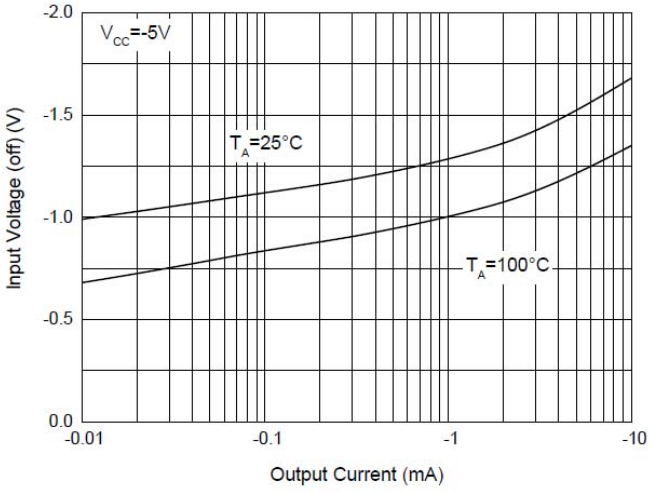
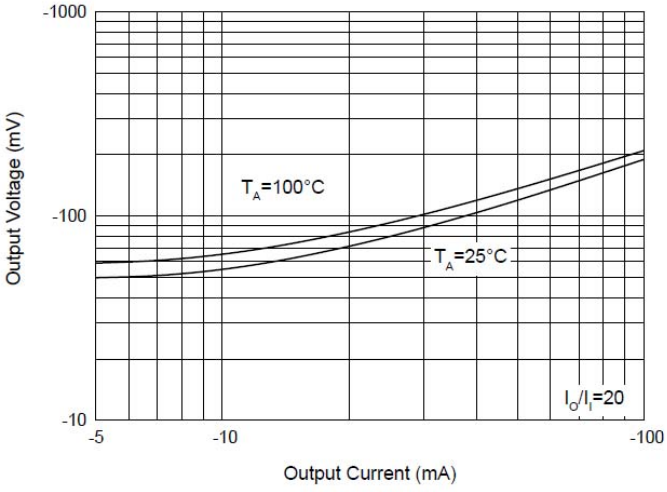
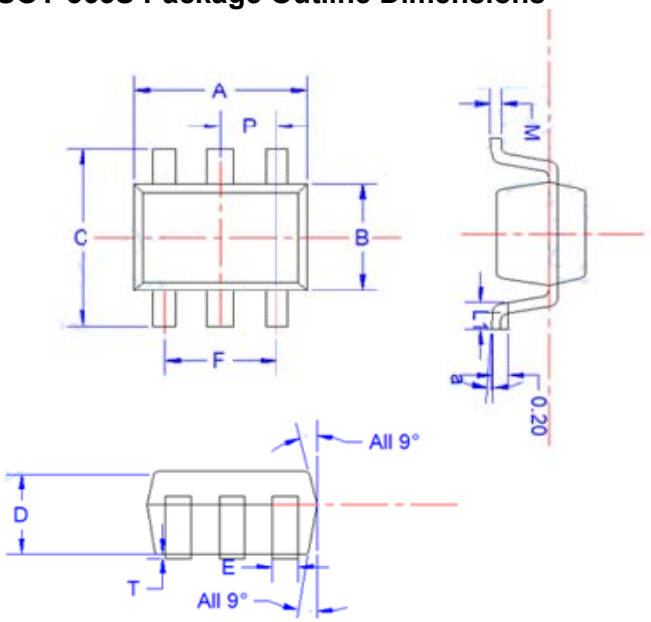


Fig. 8 - DTR2 Output Voltage Characteristics

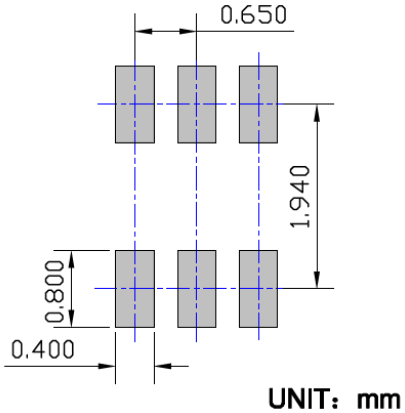


■SOT-363S Package Outline Dimensions



SYMBOL	MILLIMETER		
	MIN	NOM	MAX
E	0.15	0.25	0.35
B	1.15	1.25	1.35
C	2.00	2.10	2.20
P		0.650BSC	
A	1.80	2.00	2.20
T	0.00	0.05	0.100
D	0.90	0.95	1.00
L1	0.20	0.30	0.40
a		4°±4°	
M	0.10	0.15	0.25

■Suggested Pad Layout



UNIT：mm

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